

RESURRECTION OF THE PLANT BUG GENUS *PAPPUS* DISTANT, WITH
CLARIFICATION OF INCLUDED SPECIES (HEMIPTERA:
HETEROPTERA: MIRIDAE)

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Abstract.—The genus *Pappus* (**revised status**), with *P. sordidus* Distant as the type species, is resurrected from synonymy under the orthotyline genus *Ceratocapsus* Reuter, redescribed, transferred to the subfamily Mirinae, tribe Mirini, and shown to be the senior synonym of *Platylygus* Van Duzee, **new synonymy**. As a result, the 31 species previously placed in *Platylygus* represent **new combinations** in the genus *Pappus*. *Pappus breviceps* Osborn and Drake is transferred from the subfamily Orthotylinae, tribe Ceratocapsini, in the genus *Ceratocapsus* Reuter to the subfamily Mirinae, nominate tribe Mirini, as a member of the genus *Tropidosteptes* Uhler and as a junior synonym of *T. fasciatus* (Distant), **new synonymy**. *Pappus egens* Distant and *P. insignis* Distant are tentatively retained in the genus *Ceratocapsus* (Orthotylinae: Ceratocapsini), pending further study; *Pappus sordidus* and *Tropidosteptes fasciatus* are redescribed; and a dorsal photograph for each of the four species is provided.

Key Words: Heteroptera, Miridae, Mirinae, *Pappus*, *Platylygus*, new and revised synonymies, new combinations

Distant (1884) described the genus *Pappus* to accommodate *P. sordidus*, the type species of the genus, from Guatemala, and later added *P. egens* and *P. insignis*, both from Panama (Distant 1893). Subsequently, Osborn and Drake (1915) described *P. breviceps* from Guatemala. Carvalho (1958) transferred *P. egens* and *P. insignis* to the orthotyline genus *Ceratocapsus* Reuter, but maintained *Pappus* in the subfamily Mirinae to include *P. breviceps* and *P. sordidus* (and, in error, also included the already-removed *P. egens* and *P. insignis*) (Carvalho 1959). Schuh (1995) erred in placing *Pappus* and all of its

included species in synonymy under *Ceratocapsus* Reuter, including *P. breviceps* and *P. sordidus*. Schuh's (1995: 90) annotation "syn. by ?" under *Pappus* suggests he was misled by Carvalho (1958), who placed *P. egens* and *P. insignis* in the orthotyline genus *Ceratocapsus* and later incorrectly included these two species as mirines in *Pappus* (Carvalho 1959).

In this paper, the genus *Pappus*, with *P. sordidus* Distant as the type species, is redescribed, resurrected from synonymy under the orthotyline genus *Ceratocapsus*, transferred to the subfamily Mirinae, nominate tribe Mirini, and shown to be

the senior synonym of *Platylygus* Van Duzee. *Pappus breviceps* is transferred from the genus *Ceratocapsus* to the subfamily Mirinae, tribe Mirini, as a member of the genus *Tropidosteptes* Uhler and a junior synonym of *T. fasciatus* (Distant). *Pappus egens* Distant and *P. insignis* Distant (Orthotylinae: Ceratocapsini) are tentatively retained in the genus *Ceratocapsus*. *P. sordidus* and *Tropidosteptes fasciatus* are redescribed, and a dorsal photograph of each of the four species is provided to help distinguish these long-overlooked plant bugs from other Miridae. A list of the species formerly placed in *Platylygus* is given to reflect their new generic combinations.

Acronyms for collections cited in the paper are as follows: BMNH (The Natural History Museum, London); OSU (Ohio State University, Columbus); USNM (National Museum of Natural History, Washington, D. C.).

Pappus Distant, revised status

Pappus Distant 1884: 266 (orig. descrip.); Carvalho 1952a: 91 (list); Carvalho 1959: 269 (cat.). Type species: *Pappus sordidus* Distant, 1884. Monotypic.

Platylygus Van Duzee 1915: 111 (orig. descrip.); Carvalho 1959: 226 (cat.); Kelton and Knight 1970: 1429 (descrip., key); Kelton 1980: 135 (diag., key); Henry and Wheeler 1988: 352 (cat.); Schuh 1995: 919 (cat.). Type species: *Lygidea rubecula* var. *lurida* Reuter, 1909. Monotypic. **New synonymy.**

Diagnosis.—This genus is recognized by the elongate-oval, somewhat flattened body; overall reddish-brown coloration variously tinged with red; impunctate, often finely striate, pronotum; long labium extending beyond metacoxae, often to the base of the male genital capsule; finely punctate to rugose pronotum except for the smooth calli;

weakly punctate corium; weakly punctate and transversely rugose clavus; and distinct tubercle on genital capsule above the left paramere.

Discussion.—I have studied the lectotype of *Pappus sordidus* Distant in the BMNH and find that it clearly belongs in the subfamily Mirinae, tribe Mirini, as a distinct genus. In addition, *Pappus sordidus* is unmistakably congeneric with members of the genus *Platylygus* Van Duzee. The overall oblong oval body shape, elongate head, reddish-brown coloration, surface texture, long labium extending beyond the metacoxae, and male genitalia unite all of the species in the genus. *Pappus sordidus* readily keys in Kelton and Knight (1970) to *Platylygus crassicornis* Kelton, one of two previously known species having somewhat thickened or incrassate antennae. As a consequence, I resurrect the genus *Pappus*, with *P. sordidus* as the type species, and synonymize *Platylygus* as a junior synonym.

The following is a summary of the literature, the current placement of each of the four species previously placed in *Pappus*, and a list reflecting new combinations for the species formerly placed in *Platylygus*. Kelton and Knight (1970) described, illustrated male genitalia, and provided a key to the 31 known species (as *Platylygus*), excluding *P. sordidus*.

Pappus sordidus (Distant), revised combination (Fig. 1)

Pappus sordidus Distant 1884: 266 (orig. descrip.); Atkinson 1890: 69 (list); Carvalho 1952a: 91 (as type of genus); Carvalho 1952b: 6 (list); Carvalho 1959: 186 (cat.); Carvalho and Dolling 1976: 807 (lectotype desig.).

Ceratocapsus sordidus: Schuh 1995: 96 (cat.).

Diagnosis.—Recognized by the overall elongate-oval shape, reddish-brown col-

oration, somewhat elongate head, finely punctate dorsum, subequally thickened antennal segments I and II, and the long labium that extends to the middle of the abdomen.

Description.—Lectotype ♂: Length to apex of hemelytra 5.58 mm, length to base of cuneus 4.12 mm, width 1.88 mm. Head: Length 0.84 mm, width 1.10 mm, vertex 0.44 mm. Labium: Length 3.42 mm, extending to base of genital capsule. Antenna: Segment I, length 0.72 mm; subapical diameter 0.14 mm; II, 2.10 mm, subapical diameter 0.18 mm; III, 0.70 mm; IV, 0.60 mm. Pronotum: Length 0.96 mm, basal width 1.70 mm.

Coloration: Overall coloration orange to reddish brown; antennal segments II–IV, clavus, inner half of corium, cuneus, and membranal veins more tinged with red; membrane smoky brown.

Structure and vestiture: Elongate oval; head, smooth, impunctate, wider than long, frons and clypeus protruding in front of eyes by dorsal length of one eye. Labium long, extending to base of genital capsule; segment I stout, extending to bases of procoxae; segment II–IV slender, half or less the diameter of I. Pronotum trapeziform, finely punctate, except for smooth area across calli; collar distinct, lateral margins straight, basal margin weakly rounded; scutellum equilateral, impunctate. Hemelytron subparallel, corium finely punctate, clavus transversely rugose with some fine punctures, cuneus two times as long as wide; membrane entire with two closed cells. Legs slender, glabrous on femora to weakly pubescent on tibiae; tibiae appearing unarmed, tibial spines short and weak, only slightly stouter than and easily confused with short recumbent setae; parempodia divergent. Male genitalia not dissected; aperture large, open, with a short, slender tubercle above base of left paramere; left paramere C-shaped, with a distinct, slender basal process,

arm weakly bifid distally; right paramere elongate oval, somewhat paddle shaped.

Host.—Unknown, but based on the known habits of other species in the genus (Kelton and Knight 1970), *P. sordidus* will almost certainly prove to be a pine (*Pinus* sp.) specialist.

Distribution.—Known only from Guatemala.

Discussion.—*Pappus sordidus* runs to *P. crassicornis* Kelton in Kelton and Knight's (1970) key to the species of *Platylygus* based on the glabrous dorsum, long rostrum lacking red dots or lines, short tibial setae, uniformly colored clavus and corium, unmarked scutellum, short setae on the antennae, prominent anterior pronotal angles, the thickened antennae, and small size. It can be distinguished from *P. crassicornis* by the smaller size (♂ length 5.58 mm vs ♀ length 6.80 mm for *P. crassicornis*), the small slender tubercle above the left paramere (vs. a large bulbous tubercle for *P. crassicornis*), the slender, apically acute basal process of the left paramere (vs. shorter, more bluntly rounded for *P. crassicornis*), and the less prominent "shoulder" opposing the apical hook on the right paramere (vs. a prominent shoulder [fig. 22B-s in Kelton and Knight 1970] for *P. crassicornis*). Because *P. sordidus* is known only from the lectotype male, I have not dissected the genitalia but, almost certainly, additional characters will be revealed upon closer examination of these structures.

Specimens examined.—GUATEMALA: Lectotype ♂: Label 1 (circular label with narrow purple outer ring), "Lectotype"; label 2, "S. Geronimo, Guatemala, Champion"; label 3 (handwritten), "*Pappus sordidus* Dist."; label 4 (red printed label here added), "LECTOTYPE: ♂ *Pappus sordidus* Distant, desig. by J.C.M. Carvalho & D. R. Dolling" (BMNH).

**New combinations for Species Formerly
Placed in the Genus *Platylygus***

- Pappus alpinus* (Kelton), 1970. **New combination.**
- Pappus andrei* (Knight), 1970. **New combination.**
- Pappus angulatus* (Kelton), 1970. **New combination.**
- Pappus aztecus* (Kelton), 1970. **New combination.**
- Pappus balli* (Knight), 1970. **New combination.**
- Pappus brevirostris* (Kelton), 1970. **New combination.**
- Pappus chamulans* (Kelton), 1970. **New combination.**
- Pappus chiapasensis* (Kelton), 1970. **New combination.**
- Pappus contortae* (Kelton), 1970. **New combination.**
- Pappus crassicornis* (Kelton), 1970. **New combination.**
- Pappus crinitus* (Kelton), 1970. **New combination.**
- Pappus fuliginosus* (Knight), 1918. **New combination.**
- Pappus grandis* (Knight), 1918. **New combination.**
- Pappus hirtus* (Knight), 1970. **New combination.**
- Pappus intermedius* (Knight), 1918. **New combination.**
- Pappus keltoni* (Knight), 1970. **New combination.**
- Pappus knighti* (Kelton), 1970. **New combination.**
- Pappus longirostris* (Kelton), 1970. **New combination.**
- Pappus luridus* (Reuter), 1909. **New combination.**
- Pappus magnus* (Kelton), 1970. **New combination.**
- Pappus mexicanus* (Kelton), 1970. **New combination.**
- Pappus piceicola* (Kelton), 1970. **New combination.**
- Pappus pilosipes* (Kelton), 1970. **New combination.**
- Pappus pilosus* (Kelton), 1970. **New combination.**
- Pappus pseudotsugae* (Kelton), 1970. **New combination.**
- Pappus rolfsi* (Knight), 1970. **New combination.**
- Pappus rubripes* (Knight), 1970. **New combination.**
- Pappus scutellatus* (Kelton), 1970. **New combination.**
- Pappus teocotae* (Kelton), 1970. **New combination.**
- Pappus usingeri* (Knight), 1970. **New combination.**
- Pappus vanduzeei* (Usinger), 1931. **New combination.**

Tropidosteptes fasciatus (Distant)
(Fig. 2)

Neoborus fasciatus Distant 1893: 436 (orig. descrip.).

Pappus breviceps Osborn and Drake, 1915: 533 (orig. descrip.); Carvalho 1959: 186 (cat.). **New synonymy.**

Tropidosteptes fasciatus: Carvalho 1959: 271 (cat.); Carvalho 1986: 404 (descrip.); Carvalho and Dolling 1976: 797 (lectotype desig.); Schuh 1995: 968 (cat.).

Ceratocapsus breviceps: Schuh 1995: 91 (cat.).

Diagnosis.—This species is distinguished from all other species of *Tropidosteptes* by the overall yellowish-brown coloration, the black clypeus and antennal segments I and II, the narrow transverse red lines on the frons, the raised, impunctate calli, pale median line of the scutellum, the shiny reddish-brown, circular areas on the meso- and metapleura, and the yellowish-brown femora each with a reddish subapical spot.

Description.—Holotype ♂ (*Pappus breviceps*): Length to apex of hemelytra 4.15 mm, length to base of cuneus 3.30 mm, width 1.50 mm. Head: Length 0.40 mm, width 0.96 mm, vertex 0.34 mm. Labium: Length 0.96 mm, extending to



Figs. 1-4. 1, Lectotype of *Pappus sordidus*, dorsal aspect. 2, *Tropidosteptes fasciatus* (holotype male of *Tropidosteptes breviceps*), dorsal aspect. 3, Lectotype of *Ceratocapsus egens*, dorsal aspect. 4, Holotype of *Ceratocapsus insignis*, dorsal aspect.

middle of prosternum just past bases of procoxae. Antenna: Segment I, length 0.58 mm; II, 1.50 mm; III, missing; IV, 0.38 mm (imbedded in glue). Pronotum: Length 0.93 mm, basal width 1.42 mm.

Lectotype ♀ (*Neoborus fasciatus*): Length to apex of hemelytra 4.80 mm, length to base of cuneus 3.92 mm, width 1.72 mm. Head: Length 0.46 mm, width 1.00 mm, vertex 0.40 mm. Labium: Length ca 0.88 mm (bent). Antenna: Segment I, length 0.58 mm; II, 1.42; III, 0.58 mm; IV, 0.38 mm. Pronotum: Length 1.00 mm, basal width 1.48 mm.

Coloration: Overall yellowish brown. Head pale yellowish brown, clypeus black, eyes fuscous, nearly black, frons and vertex with 6 to 7 narrow, transverse, brown to reddish-brown lines. Labium pale yellowish brown, with apex of segment IV dark brown. Antenna uniformly fuscous to black, except for narrow pale base of segment I and pale apical $\frac{1}{3}$ of segment III. Pronotum yellowish brown; basal margin narrowly pale yellowish brown, subbasal margin and narrow lateral margins darker brown, transverse band bordering posterior margins of calli reddish to reddish brown; collar and narrow basal margin pale yellow to almost white; scutellum brown to dark brown, with a dark line or patch on either side of pale median line. Hemelytron uniformly yellowish brown, darker brown on clavus and inner half of corium. Ventral surface of thorax yellowish brown with circular meso- and metapleural patch shiny reddish brown; metathoracic auricle almost white with a red streak through middle; abdomen yellowish brown, darker brown or fuscous on dorsum of genital capsule. Legs uniformly yellowish brown; each femur with a subapical red spot on anterior face; metatibia with a diffused reddish band at base and through middle.

Structure and vestiture: Head wider than long, impunctate except for a few

indistinct punctures across base and narrowly along inner margin of eye, base with a distinct narrow carina; frons with a median groove and 6 or 7 shallow, transverse striations. Pronotum trapeziform; uniformly and deeply punctate, except on raised calli; collar distinct; posterior margin weakly rounded; lateral margins weakly constricted near middle, anterior lobe separated from posterior lobe by a wide, transverse, impressed line bordering hind margins of calli; scutellum slightly longer than wide, transversely rugose intermixed with punctures. Hemelytron evenly punctate, except for smooth cuneus. Dorsum thickly clothed with recumbent, pale brown, simple setae.

Male genitalia of holotype (and only known male) of *P. breviceps* not dissected. See Kelton (1959) for illustrations of male genitalia of *Tropidosteptes cardinalis* Uhler (fig. 18), *T.* (as *Xenoborus*) *commisuralis* Reuter (fig. 21), *T.* (as *Xenoborus*) *plagifer* Reuter (fig. 20), and *T. rufusculus* Knight (fig. 19).

Distribution.—Now known from Guatemala, Mexico, and Panama.

Discussion.—Comparison of the holotype of *Pappus breviceps* with the lectotype of *T. fasciatus* revealed that the two are clearly conspecific, agreeing in color and all external structures. *Tropidosteptes fasciatus* is most similar to *T. scaber* (Distant) in having an overall yellowish-brown coloration, the black clypeus and antennal segments I and II, and the fuscous to reddish-brown pleural areas, but *T. fasciatus* differs in lacking the transverse red lines on the frons, and having less-raised calli, a pale rather than fuscous median line on the scutellum, and femora with only a large, subapical, red spot rather than reddish bands.

Specimens examined.—Lectotype ♀ (*Neoborus fasciatus*): label 1 (circular with purple outer ring), "Lectotype"; label 2, "Atoyac, Vera Cruz, Mexico, May, H. H. S.[mith]"; label 3, "Sp.

figured"; label 4 (handwritten), "Neoborus fasciatus Dist."; label 5 (red), "Lectotype Neoborus fasciatus Distant designated by Carvalho and Dolling, 1976" (BMNH). Paralectotype ♀ (*Neoborus fasciatus*): Label 1 (circular with narrow blue outer ring), "Paralectotype"; label 2, "David, Chiriqui [Panama], Champion"; label 3, "Distant Coll. 1911-383"; label 4 (handwritten), "fasciatus Dist." (BMNH). Holotype — (*Pappus breviceps*): label 1 "Los Amates, Guatemala, 2/18-21/05 [J. S. Hine coll., as per Osborn and Drake, 1915]"; label 2, "Herbert Osborn collection"; label 3 add type label (OSU).

Ceratocapsus egens (Distant)

(Fig. 3)

Pappus egens Distant 1893: 429 (orig. descrip.); Carvalho 1959: 186 (cat., in error).

Ceratocapsus egens: Carvalho 1952b: 6 (n. comb.); Carvalho 1958(3): 46 (cat.); Carvalho and Dolling 1976: 796 (lectotype desig.); Schuh 1995: 92 (cat.).

Discussion.—Carvalho (1952b, 1958) correctly transferred *C. egens* to the subfamily Orthotylinae, but erred by giving duplicate records of this species in the subfamily Mirinae under *Pappus* (Carvalho 1959: 186). Since these papers, there has been general acceptance of the previously synonymized tribe Ceratocapsini to accommodate *Ceratocapsus* and related genera (e.g., Carvalho et al. 1984; Henry 1985, 1994; Henry and Wheeler 1988). Placement of this species in the genus *Ceratocapsus* is tentative and will be further dealt with in a forthcoming revision of the genus *Ceratocapsus*.

Ceratocapsus insignis (Distant)

(Fig. 4)

Pappus insignis Distant 1893: 429 (orig. descrip.); Reuter 1908: 171 (list); Carvalho 1959: 186 (cat, in error).

Ceratocapsus insignis: Carvalho 1952b: 8 (new comb.); Carvalho 1958(3): 46 (cat.); Carvalho and Dolling 1976: 799 (holotype info.); Schuh 1995: 93 (cat.).

Discussion.—As with *C. egens*, Carvalho (1952b, 1958) correctly transferred *C. insignis* to the genus *Ceratocapsus* in the subfamily Orthotylinae, now in the tribe Ceratocapsini, and, subsequently, erred in giving a duplicate listing this species in the mirine genus *Pappus* (Carvalho 1959:186), apparently the result of a *lapsus*. Unlike *C. egens*, however, the holotype and only known specimen of *C. insignis* is a female, which will make a positive generic placement of this species in my forthcoming revisionary work more difficult.

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